

NAUTILOIDS FROM THE CRETACEOUS (CAMPANIAN)
OZAN FORMATION, TAYLOR GROUP,
FANNIN COUNTY, TEXAS

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Abstract.—Two nautiloid species, *Cimomia ozani* new species and *Eutrephoceras dekayi* (Morton), are described from the Campanian Ozan Formation of the Taylor Group in northeast Texas. The fossil specimens were collected from a glauconitic biomicrite bed exposed in the North Sulphur River channel in Fannin County. These are the first nautiloids described from the Taylor Group.

Nautiloids are low in richness and abundance in all Cretaceous strata of Texas (Kummel 1953; 1956; Hanger 1989), and the Upper Cretaceous is particularly barren. Stephenson (1941) described only one nautiloid species from the Navarro Group. The nautiloids in this report are the first ever described from the Taylor Group. Testimony to Kummel's (1953) observation on the limited richness and abundance of Texas Cretaceous nautiloids is the fact that over five decades of collecting of the Taylor Group in the northeast Texas region by East Texas State University (now Texas A&M University at Commerce) faculty and students, among others, has produced only the seven specimens described here.

Outcrops along the North Sulphur River channel in Fannin County, Texas, expose marl and limestone strata of the Ozan Formation. A single 0.3 meter thick bed of glauconitic biomicrite is very fossiliferous and contains both reddish, ironstone casts and black, phosphatic casts and molds. To date, this bed has yielded a fauna that includes thousands of specimens of ammonites, gastropods, oysters, other bivalves, and disarticulated vertebrate remains. It is interpreted as a condensed section (Echols 1984) based upon: occurrence of ammonites from four mid-continent ammonite range zones, undulatory bottom surface, bioturbated surface, and abundant ironstone and phosphate concretions. Correlation via ammonites with the midcontinent suggests that the condensed bed accumulated slowly (at least two million years) from the mid Early Campanian to the early Late Campanian.

All fossils are from the North Sulphur River Channel, approximately one quarter mile east (downstream) from the FM 2990 bridge, 1.8 miles north of its junction with highway 34, near the town of Ladonia, Texas, in Fannin County. All specimens are deposited in the collections of the University of Texas at Austin (ET).

SYSTEMATIC PALEONTOLOGY

Order Nautiloidea Agassiz 1847
Family Hercoglossidae Spath 1927
Genus *Cimomia* Conrad 1866
Cimomia ozani, new species
Figure 1a

Diagnosis.—*Cimomia* with pronounced hyponome deflection, faint transverse ribbing, and very slight sutural sinuosity, consisting of a broad ventral and lateral lobe.

Description.—Nautiliconic shell; subglobular shape; involute; preserved as ironstone casts with some shell material; maximum diameter varies from 4.70 cm to 6.31 cm; holotype diameter = 5.41 cm; number of camerae preserved varies from 6 to 9 per one half volution; hyponome deflection from horizontal; maximum deflection = 6.75 mm; very faint transverse ribbing where shell is preserved; suture with broad and shallow ventral saddle, shallow, rounded lateral lobe; small rounded saddle near umbilicus.

Material examined.—Three specimens; ET5503 (holotype), ET5520 and ET1747.

Etymology.—This species is named for the Ozan Formation along the North Sulphur River in Fannin County, Texas.

Discussion.—*Cimomia ozani* differs from all other Cretaceous species of the genus in the very slight sinuosity of the suture. The phylogeny of nautiloids is still highly speculative, but evolutionary trends of increasing sinuosity through the Cretaceous within a lineage of *Eutrophoceras* to *Cimomia* have been hypothesized (Kummel 1964). The Eocene species, *C. vaughani* from southwestern Texas (Gardner 1923) is very similar to *C. ozani*, with the exception of a more sinuous suture, supporting the hypothesized trend.

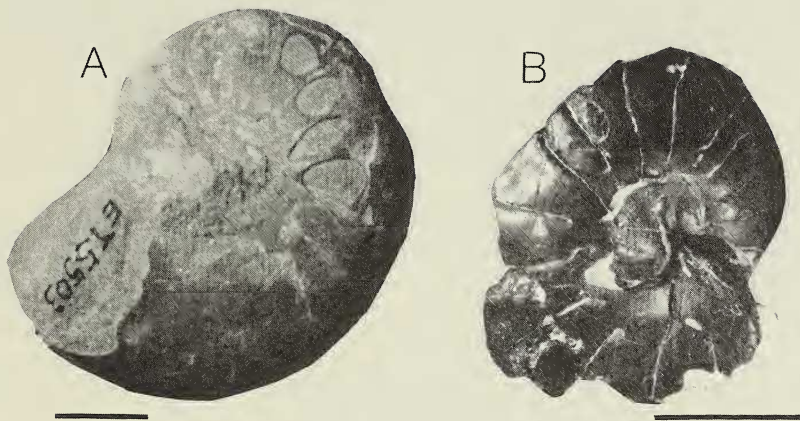


Figure 1. (A) *Cimomia ozani*, new species, holotype (ET5503). (B) *Eutrephoceras dekayi* (Morton 1834) (ET5605). Bars = 1 cm.

Family Nautilidae de Blainville 1825

Genus *Eutrephoceras* Hyatt 1894

Eutrephoceras dekayi (Morton 1834)

Figure 1b

Description.—Crushed and distorted phosphate casts consisting of varying numbers of camerae, up to 19 per 1 volution; subglobular shape; involute; maximum diameter = 5.06 cm; faint transverse ornament, up to sixteen ribs per five mm; transverse ribbing maintained on all camerae where visible; evident hyponomal deflection, deflection from horizontal = 4.01 mm; umbilical diameter = 0.2 mm; umbilical shoulders rounded; siphuncle faintly visible at 0.5 times the venter to dorsum distance; widely spaced sutures, with broad ventrolateral saddle; broad lateral and ventral lobe.

Material examined.—Four specimens; ET5504, ET1762, ET5505 and ET5605.

Discussion.—The relatively straight suture plus the umbilical size and shape clearly assign these to *E. dekayi*. Hyatt (1894) suggested that *E. dekayi* had no surface ornamentation, though Whitfield (1892) clearly shows transverse ornament. Much of the confusion probably arises

because, as Whitfield (1892) noted, the type specimen consists of only part of one chamber with very little shell material. *Eutrephoceras perlatus* (Morton 1834) from the Cretaceous Prairie Bluff Chalk of Alabama is similar in size and suture, but is not an umbilicated species, as are the Ozan Formation individuals. Stephenson (1941) erected the species, *E. planoventer*, for specimens that were flattened on the venter, but they fall within the range of variation of *E. dekayi* throughout North America (Miller & Garner 1962) and within the Ozan Formation (this report). Thus, the same species is present in both Taylor and Navarro groups.

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